

REMARKS

Claims 1, 3, 5, 8-9, 11-13, 18 and 21-27 are pending in this application. Claims 1, 11 and 12 are independent claims. The recent telephonic interview so courteously granted by Examiner Nickolas Harm and Primary Examiner Mark Osele is hereby noted with appreciation. As discussed during the interview, claims 1, 11 and 12 have been amended by deleting polyvinyl the recitations concerning "ethylene vinyl acetate resins", thereby reciting "polyvinyl acetal" as the adhesive or adherent. Accordingly, Claims 28-31 have been cancelled without prejudice or disclaimer. The amendments to the claims do not introduce any new matter and do not raise any new issues. Claims 28-31 already required "polyvinyl acetal".

Entry of the Amendment is requested under 37 C.F.R. § 1.116 because the Amendment: a) does not introduce any new matter and do not raise any new issues; b) places the application in condition for allowance for the reasons discussed herein; c) does not present any additional claims without canceling the corresponding number of final rejected claims; and/or d) places the application in better form for an appeal, if an appeal is necessary. Entry of the Amendment is thus respectfully requested.

Claims 1, 3, 5, 8, 9, 11-12, 18 and 21-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,501,761 to Evans et al. (hereinafter "Evans") in view of U.S. Patent No. 5,009,746 to Hossain et al. (hereinafter "Hossain") and Japanese Application No. JP 2002-343760 A to Ono. The cited references fail to render obvious claims 1, 3, 5, 8, 9, 11-12, 18 and 21-27, as amended.

The cited references not render obvious the claims, as now amended.

An important feature of the present invention is keeping the adherend together with a fluid which is a gas at a normal temperature and normal pressure in a high pressure condition and then releasing the pressure. With this method, the adherend can be completely separated without an adhesive deposit or the like. A fluid in the high pressure state, especially a fluid in the supercritical state or subcritical state can readily penetrate the adhesive sticking the adherend. It is believed that if the pressure is released in the state, the volume of the fluid that penetrates the adhesive as described is changed in the adhesive and following the volume alteration, stress is

caused between the adherend and the adhesive and owing to the stress, the separation is carried out.

For example, a laminate glass, which is obtained by sandwiching an adhesive or an intermediate film for the laminate glass, which adhesive is made of a thermoplastic resin sheet such as a polyvinyl acetal (e.g. polyvinyl butyral) resin sheet between glass plates and bonding them together, has been used widely as glass for vehicles such as automobiles and aircrafts or for window glass of buildings. With respect to such a laminate glass, it has been necessary to reuse the glass and the intermediate film for laminate glass by disassembling the used laminate glass and then recycling the glass and intermediate film. Please see Example 1 of the present specification. In Example 1, the laminated glass was separated into the glass and the interlayer film for the laminate glass. According to the method of the invention, the laminated glass can be separated into the glass and either the adhesive or the interlayer film for the laminate glass. The glass and interlayer film for the laminate glass that are obtained are completely separated from each other, so that they can be made reusable by recycling them as they are. Especially, in the case a single sheet of the adherend is used as it is, the recovered glass and the interlayer film for laminate glass can be made reusable as they are obtained from the separation process according to the present invention.

In the step of sealing the adherend and the fluid which is a gas at a normal temperature and normal pressure in the pressure resistant container, "water" is added into the pressure resistant container. Use of water in combination makes separation of the adherend easier and more reliable. All of the Examples in the present application use "water".

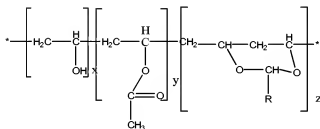
Evans suggests a method for removing a conformal coating from a circuit board. The method comprises the steps of locally thinning the coating, and then subjecting the coated circuit board in a processing chamber to supercritical carbon dioxide. The method of Evans is to dissolve a coating material remaining at the bottom of an incision with a supercritical carbon dioxide (please see column 4, lines 47-58). However, Evans fails to disclose the use of "water" with a supercritical carbon dioxide.

Comparing the present invention and Evans, illustrates that the mechanics of separation differ significantly from each other. In the present invention, separation occurs due to the volume change of the fluid that penetrates the adhesive. The adhesive itself is not dissolved in the fluid. Thus the adhesive itself can be recovered and can be made reusable by recycling. On the other hand, in the method of Evans, separation occurs due to dissolving a coating material (adhesive) by supercritical carbon dioxide.

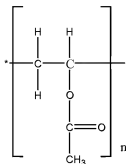
The only coatings mentioned in Evans are parylene, urethane and silicone resins, which differ significantly from the resins now recited in the present claims.

Hossain does not overcome the above discussed deficiencies of Evans with respect to rendering obvious the present invention does not overcome the above discussed deficiencies of Evans with respect to rendering obvious the present invention. As discussed at the interview, Hossain suggests removing "stickies" from secondary fibers. Among the "stickies", Hossain suggests polyvinyl acetate (PVA) polymers and copolymers and ethylene vinyl acetate (EVA) polymers and copolymers. As pointed out during the interview, Hossain does not disclose the polyvinyl acetal resins as recited in the claims.

In particular, polyvinyl acetal can be represented by the following formula:



Polyvinyl acetate can be represented by the following formula:



Ono does not overcome the above discussed deficiencies of Evans and Hossain with respect to rendering obvious the present invention. Ono suggests a method removing organic polymer substances adhering or deposited on objects to be washed by spraying water or a polar solvent.

All of the teachings in the art must be considered including those that teach away. Please see *In re Mercier* 185 USPQ 774 (CCPA, 1975). Moreover, where, as here, the teachings of the prior art would discourage persons skilled in the art from doing what applicant teaches and claims, the art establishes the “very antithesis of obviousness”. Please see, *In re Rosenberger*, 156 USPQ 24 (CCPA, 1967) and *In re Buehler*, 185 USPQ 781 (CCPA, 1975).

In addition, claims 11 and 12 and claims dependent thereon are patentable over the cited references, since Evans which requires making incisions would not be applicable to laminates where the adhesive or interlayer would not be accessible to have incisions made therein. Also, the spraying technique required by Ono would not be effective for laminates as recited in these claims. As discussed in the present specification at paragraph [0013], water or a polar solvent in supercritical or subcritical state cannot be sprayed directly to organic polymer substances formed thin between two pieces of an object to be washed.

A laminate glass which is obtained by sandwiching an interlayer film for laminate glass made of a polyvinyl butyral resin sheet between glass plates and bonding them together, has been used widely as glass for vehicles such as automobiles and aircrafts or for window glass of constructions. With respect to such a laminate glass, it has been required to reuse the glass and the interlayer film for laminate glass by disassembling the used laminate glass in terms of recycling.

Please see Example 1 of the description. In Example 1, the laminate glass was separated to the glass and the interlayer film for laminate glass. According to the method of the invention, the laminate glass can be separated into glass and the interlayer film for laminate glass. The obtained glass and interlayer film for laminate glass are completely separated from each other, so that they can be made reusable by recycling them as they are. Especially, in the case a single sheet of the adherend is used as it is, the recovered glass and the interlayer film for laminate glass can be made reusable as they are.

A technical feature of the present invention is keeping the laminated glass together with a fluid which is a gas at a normal temperature and normal pressure in a high pressure condition and then releasing the pressure. With this method, the laminated glass can be completely separated without adhesive deposit and the like.

Evans et al and Hossain do not disclose "a method for separating a laminated glass". As pointed out above, the mechanics of separation of Evans et al and Hossain are quite different from that of the present invention. In Evans et al and Hossain, separation as achieved by dissolving a adhesive with a supercritical fluid. However in the present invention, as explained above, separation is occur with the volume change of the fluid that penetrates the interlayer film. The interlayer film itself is not dissolved in the fluid. Thus the interlayer film itself can be recovered and can be made reusable by recycling.

Claim 13 was rejected under 35 USC 103(a) as being unpatentable over US Patent 5,501,761 to Evans et al. in view of Japanese Application No. JP 2002-343760 A to Ono and US Patent 6,383,647 to Shohi et al. The cited art does not render obvious claim 13. Shohi et al. do not overcome the above discussed deficiencies of Evans, Hossain and Ono. Shohi et al were relied upon for a disclosure of heating laminated glass with an interlayer film at a temperature at 150 degrees Celsius, which according to the office action is equivalent to firing the glass and interlayer. Therefore, claim 13 is patentable for at least those reasons as to why claim 12 is patentable.

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes that another interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 21581-00458-US from which the undersigned is authorized to draw.

Dated: November 18, 2010

Respectfully submitted,

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